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> #2020/10/23(五) 109 學年第一學期資料科學應用 R 作業(1)
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> #ex1.7(a)
> a1 <- LETTERS[1:5]
> rep(a1,5:1)
 [1] "A" "A" "A" "A" "A" "B" "B" "B" "B" "C" "C" "C" "D" "D" "E"
> #ex1.7(b)
> letters[c(seq(2,26,2),seq(1,26,2))]
 [1] "b" "d" "f" "h" "j" "l" "n" "p" "r" "t" "v" "x" "z" "a" "c" "e" "g"
[18] "i" "k" "m" "o" "q" "s" "u" "w" "y"
> #ex1.7(c)
> b <- rep(c(1,-1),50)
> c <- 1:100
> require(MASS)
> fractions(b/c)
  [1]     1   -1/2    1/3   -1/4    1/5   -1/6    1/7   -1/8    1/9
 [10] -1/10   1/11  -1/12   1/13  -1/14   1/15  -1/16   1/17  -1/18
 [19]  1/19  -1/20   1/21  -1/22   1/23  -1/24   1/25  -1/26   1/27
 [28] -1/28   1/29  -1/30   1/31  -1/32   1/33  -1/34   1/35  -1/36
 [37]  1/37  -1/38   1/39  -1/40   1/41  -1/42   1/43  -1/44   1/45
 [46] -1/46   1/47  -1/48   1/49  -1/50   1/51  -1/52   1/53  -1/54
 [55]  1/55  -1/56   1/57  -1/58   1/59  -1/60   1/61  -1/62   1/63
 [64] -1/64   1/65  -1/66   1/67  -1/68   1/69  -1/70   1/71  -1/72
 [73]  1/73  -1/74   1/75  -1/76   1/77  -1/78   1/79  -1/80   1/81
 [82] -1/82   1/83  -1/84   1/85  -1/86   1/87  -1/88   1/89  -1/90
 [91]  1/91  -1/92   1/93  -1/94   1/95  -1/96   1/97  -1/98   1/99
[100] -1/100
> #ex.1.7(d)
> month.abb[c(seq(1,12,2),seq(2,12,2))]
 [1] "Jan" "Mar" "May" "Jul" "Sep" "Nov" "Feb" "Apr" "Jun" "Aug" "Oct"
[12] "Dec"
> #ex1.23(a)
> math.score <- c(43,94,20,8,46,72,93,8,28,33,79,60,93,52,8)
> #ex1.23(b)
> length(math.score)
[1] 15
> #ex1.23(c)
> d <- math.score[seq(2,15,2)]
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> mean(d)
[1] 46.71429
> #ex1.23(d)
> names(math.score)=seq(1, 15)
> names(math.score[math.score >= 60])
[1] "2"  "6"  "7"  "11" "12" "13"
> length(math.score[math.score >= 60])
[1] 6
> #ex1.37(a)
> age <- c(54,64,75,21,66,49,25,72,50,72)
> gender <- c("女", "男", "男", "女", "女", "男", "男", "女", "男", "女")
> index <- c(86,30,NA,43,35,42,31,7,29,80)
> sat <- c("滿意","非常滿意","非常不滿意","非常滿意","普通","非常不滿意","普
通","滿意",
+                                  "普通","非常滿意")
> sat <- factor(sat, levels = c("非常滿意", "滿意", "普通", "非常不滿意"))
> #ex1.37(b)
> sat2 <- ordered(sat, levels = rev(levels(sat)))
> sat[sat2 >= "滿意"]
[1] 滿意       非常滿意 非常滿意 滿意       非常滿意
Levels: 非常滿意 滿意 普通 非常不滿意
> length(sat[sat2 >= "滿意"])
[1] 5
> #ex1.37(c)
> i <- index[age >= 40 & gender == "男"]
> mean(i, na.rm = T)
[1] 33.66667
> #加分作業(1)
> e <- 1:5
> rep(e,1:5)
 [1] 1 2 2 3 3 3 4 4 4 4 5 5 5 5 5
> #加分作業(2)
> f <- 5:1
> rep(f,1:5)
 [1] 5 4 4 3 3 3 2 2 2 2 1 1 1 1 1
> #加分作業(3)
> rep(1:3,3)
[1] 1 2 3 1 2 3 1 2 3
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```
> #加分作業(4)
> print('請輸入長度值：')
[1] "請輸入長度值："
> length=readline()
11
> g <- c()
> for(i in    1 : length)
+     {if(i == 1)
+     g[i] <- 0
+     else if(i == 2)
+         g[i] <- 1
+     else
+         g[i] <- c(g[i - 2] + g[i - 1])
+ }
> cat(g)
0 1 1 2 3 5 8 13 21 34 55
> #加分作業(5)
> h <- c(1 : 5)
> for(i in 1:5){
+     cat(h[i : 5], "")
+ }
1 2 3 4 5 2 3 4 5 3 4 5 4 5 5
> #加分作業(6)
> print('請輸入長度值：')
[1] "請輸入長度值："
> length=readline()
6
> j <- c()
> count <-5
> for(i in 1 : length){
+     if(i == 1)
+         j[i] <- 1
+     else
+     {j[i] <- j[i-1] + count
+     count <- count + 2}
+ }
> cat(j)
1 6 13 22 33 46
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> #加分作業(7)
> print('請輸入長度值：')
[1] "請輸入長度值："
> length=readline()
8
> k <- c()
> for(i in    1: length){
+     if(i ==    1)
+         k[i] <- i
+     else if(i == 2)
+         k[i] <- i
+     else if(i %% 2 == 0)
+         k[i] <- k[i - 2] * 2
+     else
+         k[i] <- k[i - 2] * 3
+ }
> cat(k)
1 2 3 4 9 8 27 16
>
```